

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:
JASON C. FEDON
SMITHKLINE BEECHAM CORPORATION
CORPORATE INTELLECTUAL PROPERTY, UW220
709 SWEDELAND ROAD, PO BOX 1539
KING OF PRUSSIA, PA 19406-0939

PCT

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NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference P51335	Date of Mailing (day/month/year) 21 MAY 2004 FOR FURTHER ACTION See paragraphs 1 and 4 below
International application No. PCT/US03/10177	International filing date (day/month/year) 03 April 2003 (03.04.2003)
Applicant SMITHKLINE BEECHAM CORPORATION	

1. ☒ The applicant is hereby notified that the international search report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

Where? Directly to the International Bureau of WIPO, 34, chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90 *bis*.1 and 90 *bis*.3, respectively, before the completion of the technical preparations for international publication.

Within 19 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later); otherwise the applicant must, within 20 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the ISA/US
Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
Facsimile No. (703)305-3230

Authorized officer
Valerie Bell-Harris
Ulrike Winkler

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TENT COOPERATION TREATY

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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P51335	FOR FURTHER ACTION	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/US03/10177	International filing date (<i>day/month/year</i>) 03 April 2003 (03.04.2003)	(Earliest) Priority Date (<i>day/month/year</i>) 03 April 2002 (03.04.2002)
Applicant SMITHKLINE BEECHAM CORPORATION		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the Report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

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the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:

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contained in the international application in written form.

☒

filed together with the international application in computer readable form.

☐

furnished subsequently to this Authority in written form.

☐

furnished subsequently to this Authority in computer readable form.

☐

the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐

the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (See Box II).

4. With regard to the title,

☒

the text is approved as submitted by the applicant.

☐

the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒

the text is approved as submitted by the applicant.

☐

the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No. _____

☐

as suggested by the applicant.

☐

because the applicant failed to suggest a figure.

☐

because this figure better characterizes the invention.



None of the figures

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/10177

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C07H 21/04

US CL : 536/23.72

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 424/218.1, 228.1; 435/5, 69.1, 320.1; 536/23.1, 23.4, 23.72, 24.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2001/0034019 A1 (HONG et al.) 25 October 2001 (25.10.2001), see figure 1.	1,2,17, 18, 20, 21 ----- 3, 9, 19
X --- A	US 6,326,137 B1 (HONG et al.) 4 December 2001 (4.12.2001), see figure 1.	1,17, 18, 20, 21 ----- 2-16, 19
Y --- A	LOHMANN et al. Replication of subgenomic hepatitis C virus RNAs in a hepatoma cell line. Science, July 1999, Vol. 285, No.5424, pages 110-113.	1, 5, 9, 12, 20, 21 ----- 2-4, 6-8, 10, 11, 13-19
Y --- A	EP 1043399A2 (BARTENSCHLAGER) 10 November 2000 (10.11.2000), see claims.	1, 5, 9, 12, 20, 21 ----- , 6-8, 10, 11, 13-19
A	BARTENSCHLAGER et al. Replication of hepatitis C virus. Journal of General Virology, July 2000, Vol. 81, No.7, pages 1631-1648.	1-21



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:		"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier application or patent published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

26 September 2003 (26.09.2003)

Date of mailing of the international search report

21 MAY 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
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INTERNATIONAL SEARCH REPORT

PCT/US03/10177

C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	LOHMANN et al. Mutations in hepatitis C virus RNAs conferring cell culture adaptation. Journal of Virology. February 2001, Vol.75, No. 3, pages 1437-1449.	1-21
A	FRIEBE et al. Sequences in the 5' nontranslated region of hepatitis C virus required for RNA replication. Journal of Virology, December 2001 Vol. 75, No. 24, pages 12047-12057.	1-21

INTERNATIONAL SEARCH REPORT

PCT/US03/1177

Continuation of B. FIELDS SEARCHED Item 3:
WEST, DERWENT, STN-EMBASE MEDLINE BIOSIS
hepatitis C virus, HCV, chimera, flavivirus, replicon, NS5B polymerase, inventor search.